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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,019

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James P. Phillips

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EXAMINER

NGUYEN, CHAU N

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,019

Applicant(s)

PHILLIPS ET AL.

Examiner

Chau N Nguyen

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 24 and 25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/22/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Figure 2 is not provided with proper cross-section hatching, see MPEP 608, and the conductive sleeve "340" in Figure 3 is not shown as surrounding the periphery of the spacer "330". Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 3-6, recites "a conductive sleeve having a first end.....electrically coupled to the center conductor". Claim 1, lines 7-9, also recites "a dielectric spacer, located inside the conductive sleeve **for preventing a portion of the center conductor from electrically coupling to the conductive sleeve**". Specifically, when the first end of the conductive sleeve electrically coupled to the center conductor, it means that a portion of the center conductor is electrically coupled to the conductive sleeve.

Claims 2-21 are included in this rejection because of dependency.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-9, 14-17, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (5,902,957) in view of Gothe (2,018,353).

Takahashi et al. discloses a cable (Fig. 1) comprising a center conductor (2), a conductive sleeve (1) having a first end and a second end and an effective electrical length, surrounding a portion of the center conductor, with the first end

electrically coupled to the center conductor. Takahashi et al. does not disclose the conductive sleeve having a length equal to an odd quarter wavelength of a frequency of interest, a dielectric spacer located inside the conductive sleeve, nor a dielectric joint coupled to the second end of the conductive sleeve for positioning a portion of the center conductor in a middle of the second end.

Although not specifically disclosed by Takahashi et al., it would have been obvious to one skilled in the art to provide the conductive sleeve of Takahashi et al. with a length equal to an odd quarter wavelength of a frequency of interest to meet the specific use of the resulting cable since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Gothe discloses a cable (Figs 1 and 2) comprising a center conductor, a conductive sleeve, and a plurality of dielectric spacers located inside the conductive sleeve. It would have been obvious to one skilled in the art to provide the spacer as taught by Gothe inside the conductive sleeve of Takahashi et al. to improve the insulation between the center conductor and the conductive sleeve. It is noted that since a plurality of spacers are provided inside the conductive sleeve of Takahashi et al., a dielectric joint (or a spacer) is coupled to the second end of

the conductive sleeve. Also noted that the modified cable of Takahashi et al. can be a test cable since it comprises structure and material as claimed.

The combination of Takahashi et al. and Gothe also discloses the center conductor being a single wire (re claim 2), the dielectric spacer being spherical dielectric element (re claim 6), the diameter of the spherical dielectric element being shorter than that of the conductive element (re claim 7), the center conductor being located inside the dielectric spacer along the diameter of the spacer (re claim 8), the dielectric spacer comprising multiple spherical dielectric elements (re claim 9), the dielectric joint comprising a spherical dielectric element (re claim 14), the diameter of the spherical dielectric element being approximately equal to the diameter of the conductive sleeve (re claim 15), the center conductor being located inside the dielectric joint along a diameter of the joint (re claim 16), the first end comprising a conductive bushing (3) (re claim 17), the conductive sleeve being cylindrical in shape (re claim 19). Re claim 3, it would have been obvious to one skilled in the art to use multiple wires for the center conductor of Takahashi et al. since center conductor comprising multiple wires is known for being used in the cable art because of its flexibility. Re claims 4, 5, 20 and 21, it would have been obvious to one skilled in the art that depending on the specific use of the resulting cable, to choose a suitable material for the dielectric spacer of Takahashi et al.,

either rigid or compressible since it has been held that within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

7. Claims 1 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. in view of Sakuragi et al. (4,396,797).

Takahashi et al. discloses a cable (Fig. 1) comprising a center conductor (2), a conductive sleeve (1) having a first end and a second end and an effective electrical length, surrounding a portion of the center conductor, with the first end electrically coupled to the center conductor. Takahashi et al. does not disclose the conductive sleeve having a length equal to an odd quarter wavelength of a frequency of interest, a dielectric spacer located inside the conductive sleeve, nor a dielectric joint coupled to the second end of the conductive sleeve for positioning a portion of the center conductor in a middle of the second end (re claim 1).

Although not specifically disclosed by Takahashi et al., it would have been obvious to one skilled in the art to provide the conductive sleeve of Takahashi et al. with a length equal to an odd quarter wavelength of a frequency of interest to meet the specific use of the resulting cable since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the

optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Sakuragi et al. discloses a flexible cable comprising dielectric spacers (9, Fig. 6), each comprising a tubular solid dielectric element with an outer and an inner diameter (re claim 10), the tubular solid dielectric element being approximately the diameter of an outer sleeve (10) and the inner diameter of the tubular solid dielectric element being larger than a diameter of a center conductor (Fig. 3) (re claim 12), the dielectric spacer comprising a tubular air dielectric element inside the tubular solid dielectric element (re claim 13). It would have been obvious to one skilled in the art to use a plurality of dielectric elements (9) taught by Sakuragi et al. inside the conductive sleeve of Takahashi et al. to improve the insulation between the center conductor and the conductive sleeve. It is noted that since a plurality of spacers are provided inside the conductive sleeve of Takahashi et al., a dielectric joint (or a spacer) is coupled to the second end of the conductive sleeve, and the center conductor is located inside the spacer along a longitudinal axis of the tubular solid dielectric element (re claim 11).

8. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leitner et al. (3,106,599).

Leitner et al. discloses a cable comprising a first rigid segment (10) having an effective electrical length, a joint (Fig. 1) coupled to one end of the first rigid segment, a second rigid segment (11) having an effective electrical length coupled to the joint, and a linear conductor (10b,11b) located within the first rigid segment, the joint, and the second rigid segment. Leitner et al. also discloses a first dielectric spacer located inside the first rigid segment and a second dielectric spacer located inside the second rigid segment (col. 2, lines 49-52) (re claim 23). Leitner et al. does not disclose the first and second rigid segments, each having a length equal to an odd quarter wavelength of a frequency of interest. However, it would have been obvious to one skilled in the art to provide each rigid segment of Leitner et al. with a length equal to an odd quarter wavelength of a frequency of interest to meet the specific use of the resulting cable since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It is noted that the modified cable of Leitner et al. can be a test cable since it comprises structure and material as claimed.

Allowable Subject Matter

9. Claims 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest a test cable comprising all the features as recited in the claims and in combination with the first end of the conductive sleeve further comprising a hemispherical dielectric cover (re claim 18) and with the first rigid segment comprising a conductive sleeve with one end electrically coupled to the linear conductor (re claim 24).

Cited Art

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Whearley et al., Joerren, Peters, Rosner, and Squier disclose cables having dielectric spacers. Grandchamp et al. discloses a cable comprising rigid segments.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau N Nguyen whose telephone number is 571-272-1980. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chau N Nguyen
Primary Examiner
Art Unit 2831